

Jurisdictional Determinations

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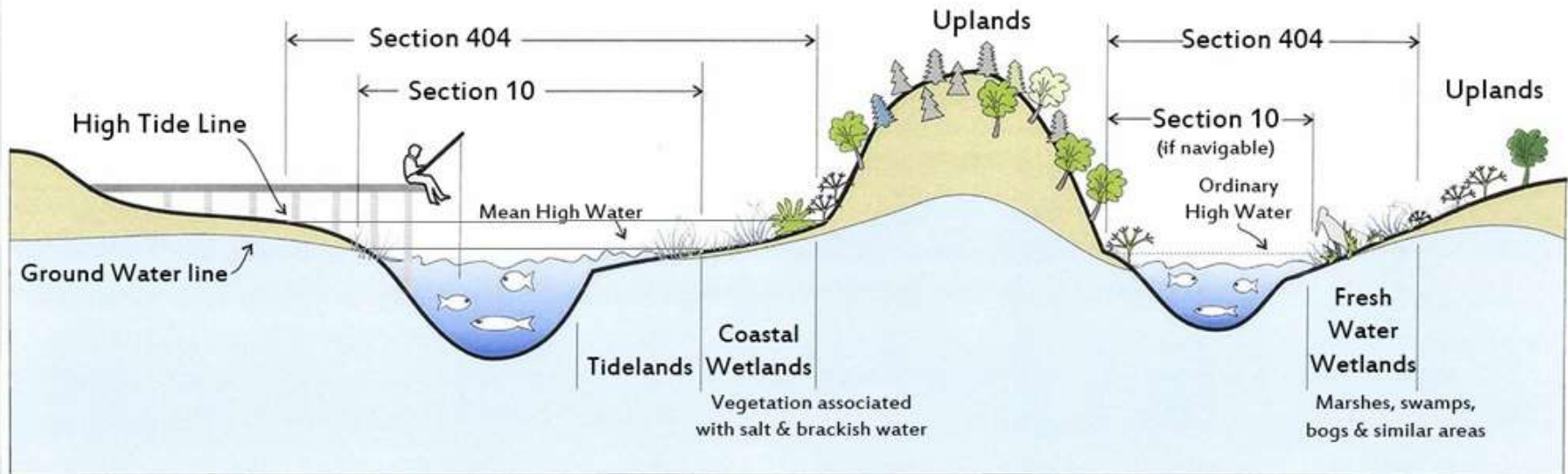


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Corps of Engineers Regulatory Jurisdiction

Tidal Waters

Fresh Waters



Typical examples of regulated activities

Section 103
Ocean Discharge of Dredged Material
Ocean discharges of dredged material.

Section 404
Disposal of Dredged or Fill Material
All filling activities, utility lines, outfall structures, beach nourishment, riprap, jetties, some excavation activities, etc.

Section 10
All Structures and Work (navigable waters)
Dredging, marinas, piers, wharves, floats, intake/outtake pipes, pilings, bulkheads, ramps, fills, overhead transmission lines, etc.



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WETLANDS

- Hydrophytic Vegetation
- Hydric Soils
- Hydrology

Delineate wetlands using the Corps of Engineers 1987 Wetland Delineation Manual and Regional Supplement



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TRIBUTARIES

A “tributary”, as defined in the Rapanos guidance document, is a **natural**, **man-altered**, or **man-made** water body that carries flow directly or indirectly into traditional navigable waters (TNW).



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ORDINARY HIGH WATER MARK (OHWM)

“CFR 328.3(e). The term ordinary high water mark means that line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.”



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OHWM Determinations: Physical Characteristics

(RGL 05-05, 12/7/05)

- Natural line impressed on the bank
- Shelving
- Changes in the character of soil
- Destruction of terrestrial vegetation
- Presence of litter and debris
- Presence of a wrack line (drift line)
- Changes in plant community
- Vegetation matted down, bent, or absent



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OHWM Determinations: Physical Characteristics (cont'd)

Sediment sorting

Leaf litter disturbed or washed away

Scour

Multiple observed flow events

Water staining

(Note: List of OHWM characteristics is not exhaustive. When using physical evidence alone, generally try to identify 2 two or more characteristics.)



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HIGH TIDE LINE (HTL)

“CFR 328.3(d). The term "**high tide line**" means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.”



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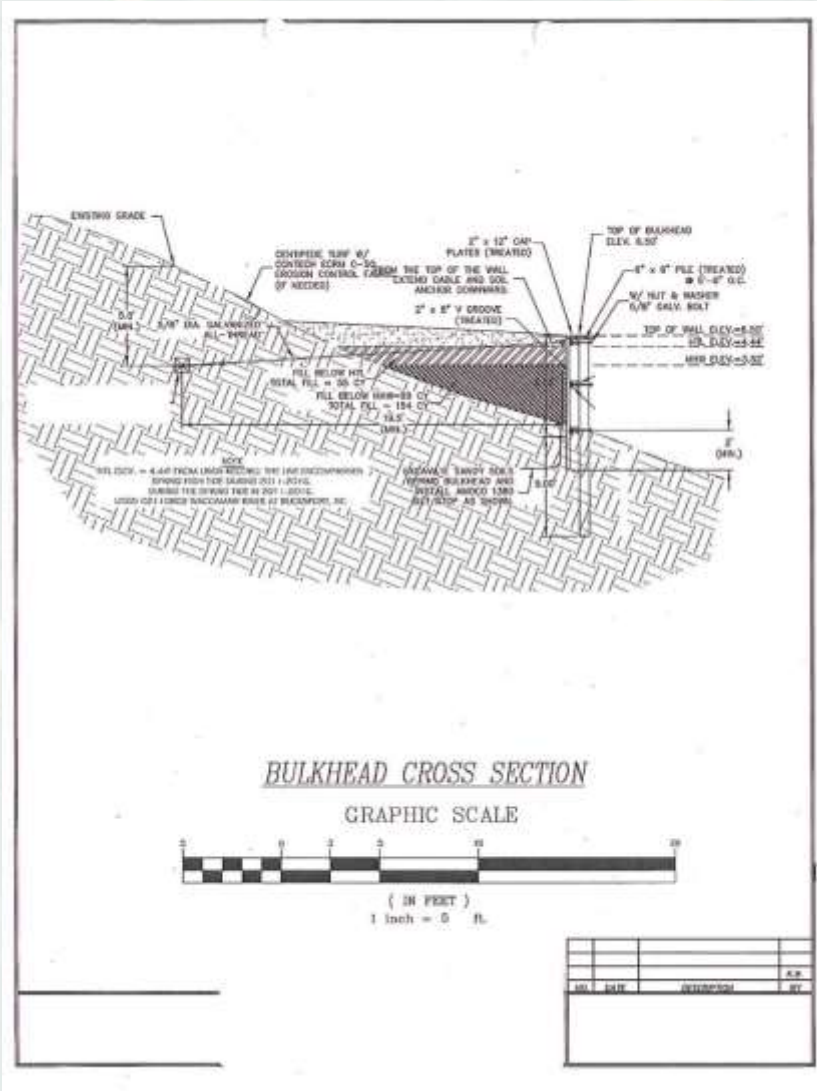
Take Away: HTL will always be higher than MHW.

MHW is the average of all high tides observed over a given period of time and establishes Section 10 limits under the RHA.

HTL is the elevation of the extreme high tide line that intersects with land and establishes the limits of Jurisdiction under Section 404 of CWA.

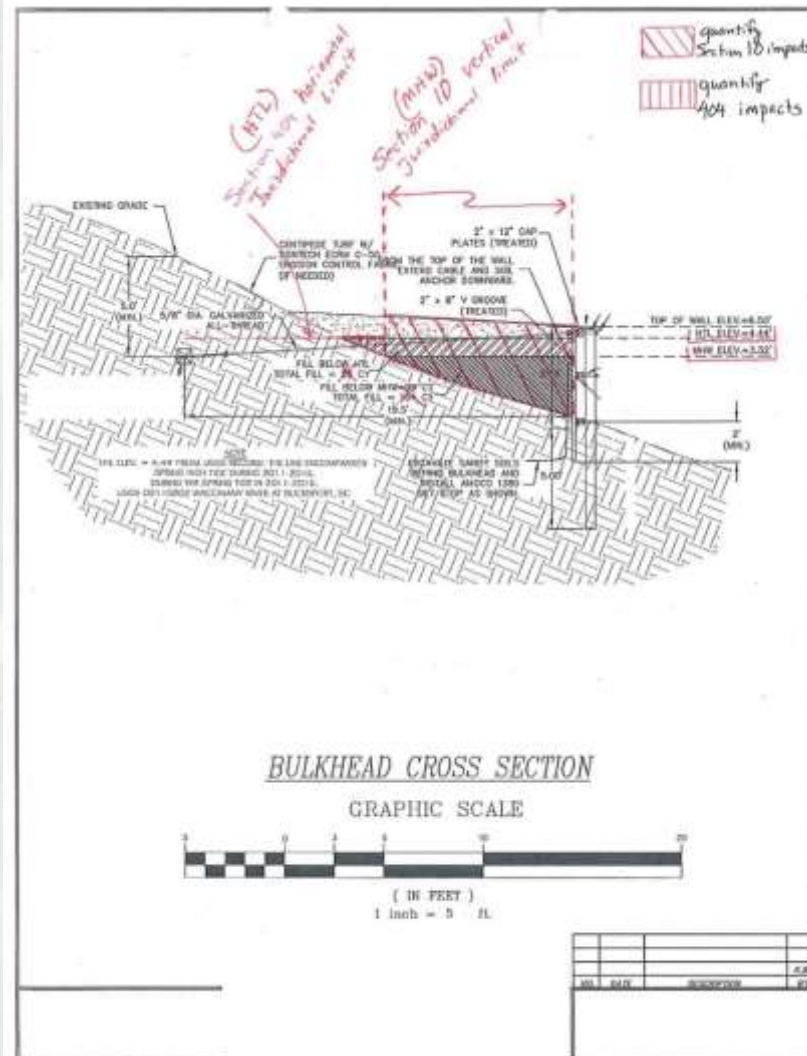


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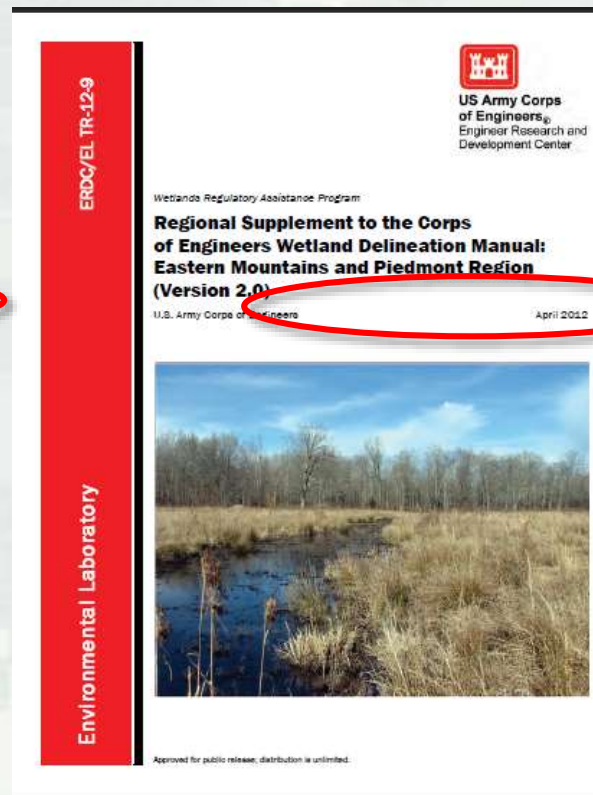
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Regional Supplements

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http://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/reg_supp/



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VEGETATION – Use scientific names of plants.

Sampling Point: Wet 2

Tree Stratum (Plot size: 30-ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	30	Y	FAC
2. Acer rubrum	10	N	FAC
3. Quercus nigra	30	Y	FAC

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)
Total Number of Dominant Species Across All Strata: 9 (B)

Interim Version Should No Longer be Used. Version 2.0 is the Most Current and Available on our Website.

Prevalence Index = $\frac{\sum DBH}{\sum DBH_{max}}$

Hydrophytic Vegetation Indicators:
— Dominance Test is >50%
— Prevalence Index is <3.0¹
— Problematic Hydrophytic Vegetation¹ (Explain):

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:
Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (If observed, list morphological adaptations below).



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Our Common Goals

Accuracy and defensibility of boundaries and the documentation supporting these.

The Regional Supplements are set up this way, particularly including the Data Sheets...



Correctly completed Data Sheets provide the best accuracy and defensibility for the delineation.



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DATA SHEETS





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ACCURACY OF DATA SHEETS

Necessary to make a wetland/non-wetland determination

Accurate information helps us better understand site conditions from the office

Accurate information improves the efficiency and timeliness of the JD process



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Accuracy of Data Sheets

**Data Sheets are the documentation,
justification, and basis for the location
of your wetland line!
Show your work.**





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WETLAND HYDROLOGY INDICATORS





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Wetland Hydrology Indicators

Presence of hydric soils and hydrophytic vegetation reflect a site's medium to long-term hydrologic history.

Wetland hydrology indicators provide evidence that a site has a continuing wetland hydrologic regime and that hydric soils and hydrophytic vegetation are not relicts of a past hydrologic regime.

Hydrologic indicators speak to a site's contemporary hydrologic condition.



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Indicator groups & categories... ...are included on the data sheet

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)

- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? Yes ☐ No ☐ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



Wetland Hydrology Indicator Groups

Group A: Indicator Group A is based on direct observation of surface water or groundwater during a site visit.

Group B: Group B consists of evidence that the site is subject to flooding or ponding, although it may not be inundated at the time of the site visit. (Indicators include water marks, drift deposits, sediment deposits water stained leaves, etc.)

Group C: Group C consists of other evidence that the soil is saturated currently or was saturated recently.(such as oxidized rhizospheres surrounding living roots, hydrogen sulfide odor etc.)

Group D: Group D consists of landscape, vegetation, and soil features that indicate contemporary rather than historical wet conditions. (FAC –Neutral Test, Geomorphic position, Stunted or stressed plants)

Note: Wetland hydrology indicators are intended as a one-time observations of site conditions that are sufficient evidence of wetland hydrology in areas where hydric soils and hydrophytic vegetation are present.



Example Data Sheet Inaccuracy

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HYDROLOGY	
Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Iron Deposits (B5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>20+</u>
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

A2 Requires Visual Observation of the Water Table Within 12 Inches of the Surface

A3 Requires Visual Observation of Saturation Within 12 Inches of the Surface

Based on the field observations, wetland hydrology is not present.



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D2: Geomorphic Position

This indicator is present if the area in question is located in a depression, drainageway, concave position within a floodplain, at the toe of a slope, on an extensive flat, on the low elevation fringe of a pond or other water body, or in an area where groundwater discharges.

User Notes: Excess water from precipitation naturally accumulates in certain geomorphic positions in the landscape. In regions with abundant rainfall, these geomorphic positions often exhibit wetland hydrology.

Indicator D2: Geomorphic position

HYDROLOGY	
Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

All Group D indicators are secondary category, and therefore require at least one other indicator to also be present.



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HYDROPHYTIC VEGETATION INDICATORS





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Hydrophytic Vegetation

...the community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence.

Hydrophytic vegetation is present when the plant community is **dominated** by species that require or can tolerate prolonged inundation or soil saturation during the growing season.



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SELECTION OF DOMINANT SPECIES

The “50/20” Rule:

Dominant species are the most abundant plant species that individually or together account for more than 50 percent of the total coverage of vegetation in the stratum, plus any additional species that, by itself, comprises at least 20 percent of the total.



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Selection of Dominant Species

Example for the sapling stratum:

<u>Absolute Species Present</u>	<u>% Cover</u>
<i>Cornus foemina</i>	25*
<i>Itea virginica</i>	20*
<i>Cornus amomum</i>	15*
<i>Rhamnus alnifolia</i>	10
<i>Toxicodendron vernix</i>	5
TOTAL COVER	75

* Selected as dominants

50/20 Thresholds:

50% of total cover:
50% of 75 = 37.5%

20% of total cover:
20% of 75 = 15%



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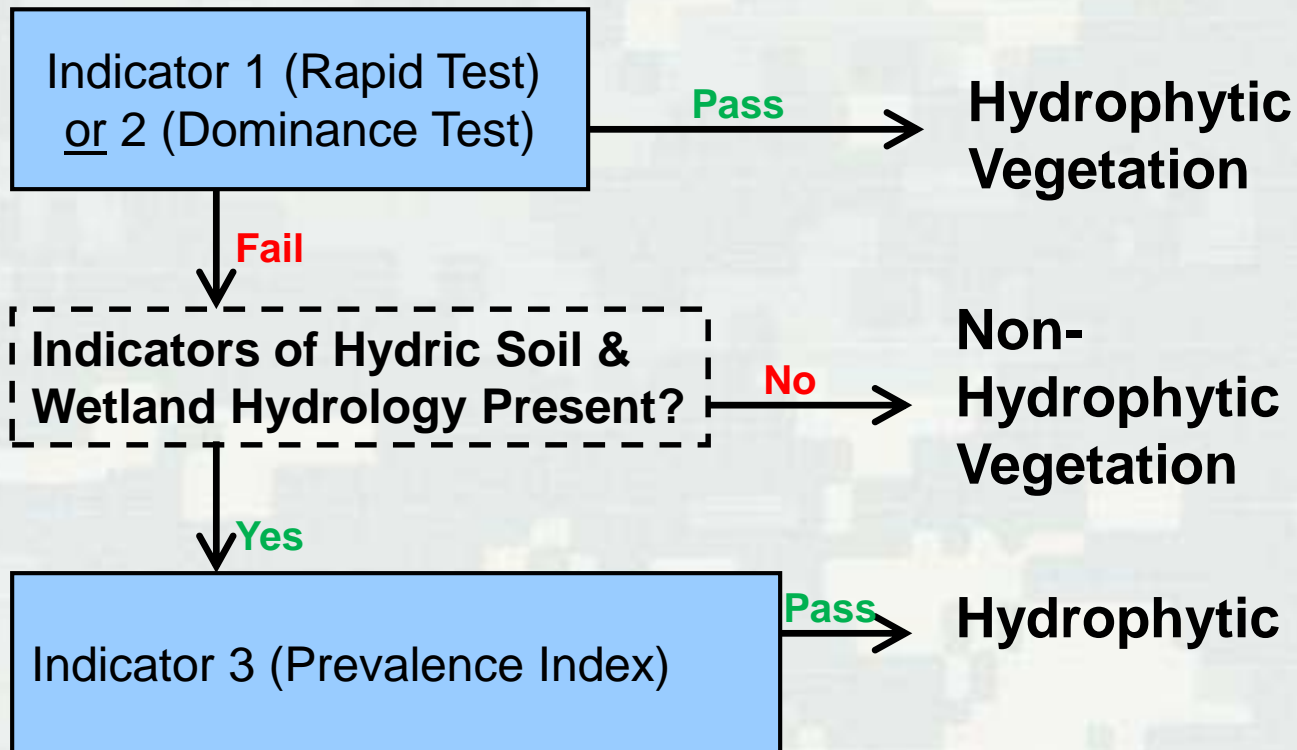
Selection of Dominant Species

	Absolute % Cover	Dominant Species?	Indicator Status
<u>Sapling Stratum</u> (Plot size: _____)			
1. <u>Cornus foemina</u>	<u>25</u>	<u>Y</u>	_____
2. <u>Itea virginica</u>	<u>20</u>	<u>Y</u>	_____
3. <u>Cornus amomum</u>	<u>15</u>	<u>Y</u>	_____
4. <u>Rhamnus caroliniana</u>	<u>10</u>	_____	_____
5. <u>Toxicodendron vernix</u>	<u>5</u>	_____	_____
6. _____	_____	_____	_____
	<u>75</u>	= Total Cover	
50% of total cover: <u>37.5</u> 20% of total cover: <u>15</u>			



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Hydrophytic Vegetation Determination: Page 22 Regional Supplement





VEGETATION (Five Strata) – Use scientific names of plants

Sampling Point: Upland A

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Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	5	no	FAC
2. Quercus falcata	10	yes	FACU
3. Liquidambar styraciflua	15	yes	FAC
4. Pinus taeda	5	no	FAC
5.			
6.			
35 = Total Cover			
50% of total cover: 17.5		20% of total cover: 7	
Sapling Stratum (Plot size: 30 ft radius)			
1. Carya cordiformis	5	yes	FAC
2. Acer rubrum	5	yes	FAC
3. Pinus taeda	3	no	FAC
4. Magnolia grandiflora	3	no	FAC
5.			
6.			
16 = Total Cover			
50% of total cover: 8		20% of total cover: 3.2	
Shrub Stratum (Plot size: 30 ft radius)			
1. Morella cerifera	15	yes	FAC
2.			
3.			
4.			
5.			
6.			
15 = Total Cover			
50% of total cover: 7.5		20% of total cover: 3	
Herb Stratum (Plot size:)			
1. Sabal minor	3	yes	FACW
2. Chasmanthium sessiliflorum	5	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
8 = Total Cover			
50% of total cover: 4		20% of total cover: 1.6	
Woody Vine Stratum (Plot size:)			
1. Vitis rotundifolia	3	yes	FAC
2. Smilax bona-nox	2	yes	FAC
3.			
4.			
5.			
5 = Total Cover			
50% of total cover: 2.5		20% of total cover: 1	

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)
Total Number of Dominant Species Across All Strata: 8 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 88.9 (A/B)

Prevalence Index worksheet:
Total % Cover of: 35 Multiply by:
OBL species 0 x 1 = 0
FACW species 3 x 2 = 6
FAC species 66 x 3 = 198
FACU species 10 x 4 = 40
UPL species 0 x 5 = 0
Column Totals: 79 (A) 244 (B)
Prevalence Index = B/A = 3.09

Hydrophytic Vegetation Indicators:
☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is <3.0¹
☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:
Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Prevalence Index should not be used when the Rapid Test or Dominance Test is already met.



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HYDRIC SOILS INDICATORS





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Definition of a Hydric Soil

...a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.





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Field Indicators

Hydric soils indicators are features within the upper part of the soil profile that collectively give the soil its hydric characteristics.

All 49 indicators are described in this Guide. However, only 28 of these occur in the Eastern Mountains and Piedmont...and 40 in the Coastal Plain Region

...each of these are included in the Regional Supplements for convenience.



Shovel vs Auger



Data points are always best collected using a shovel as opposed to an auger.



Describe the Soil Profile

To select the appropriate indicator(s), it is critical to accurately describe the soil profile on the data sheet.

The soil profile is layered.

Each layer...

- ...has a thickness (and depth),
- ...has a color,
- ...has a texture, and
- ...may have other features.





Describe the Soil Profile

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SOIL								Sampling Point: _____	
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix		Redox Features				Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-7									
7-20									

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

- ☐ Record Layer Depth and Thickness (to at least to 20" depth)



Soil Profile Example: Inaccurate Data

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SOIL								Sampling Point: _____	
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix		Redox Features			Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%					
0-8	10 YR 3/1	100							
2-8	10 YR 5/1	90	10 YR 2/1	10		C	M	Loam	Sandy loam

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

- ☐ Record Layer Depth and Thickness (to at least to 20" depth)

What are the correct layer depths and thicknesses?

Layer 1 and Layer 2 appear to overlap.

What layer(s) occur below 8"?



Describe the Soil Profile

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SOIL Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10 YR 3/2	100						
7-20	10 YR 5/1	90						

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

- ☐ Record Layer Depth and Thickness (to at least to 20" depth)
- ☐ Record Matrix Color and Percent



Describe the Soil Profile

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SOIL Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10 YR 3/1	100						
7-20	10 YR 2/3	90	10 YR 2/1	10	C	M	Loam	Sandy loam

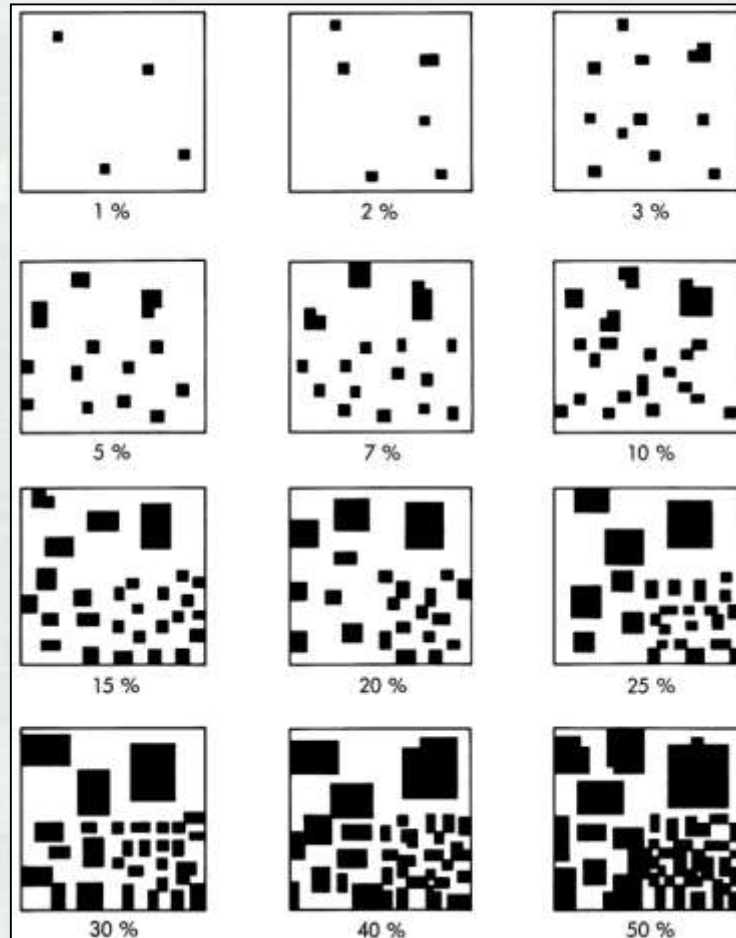
¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

- ☐ Record Layer Depth and Thickness (to at least to 20" depth)
- ☐ Record Matrix Color and Percent

10 YR 2/3 is not a Munsell color chip.

What was the correct color?

Estimating Percent



Percentage of gray = 30%
Percentage of orange = 70%





Describe the Soil Profile

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SOIL Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

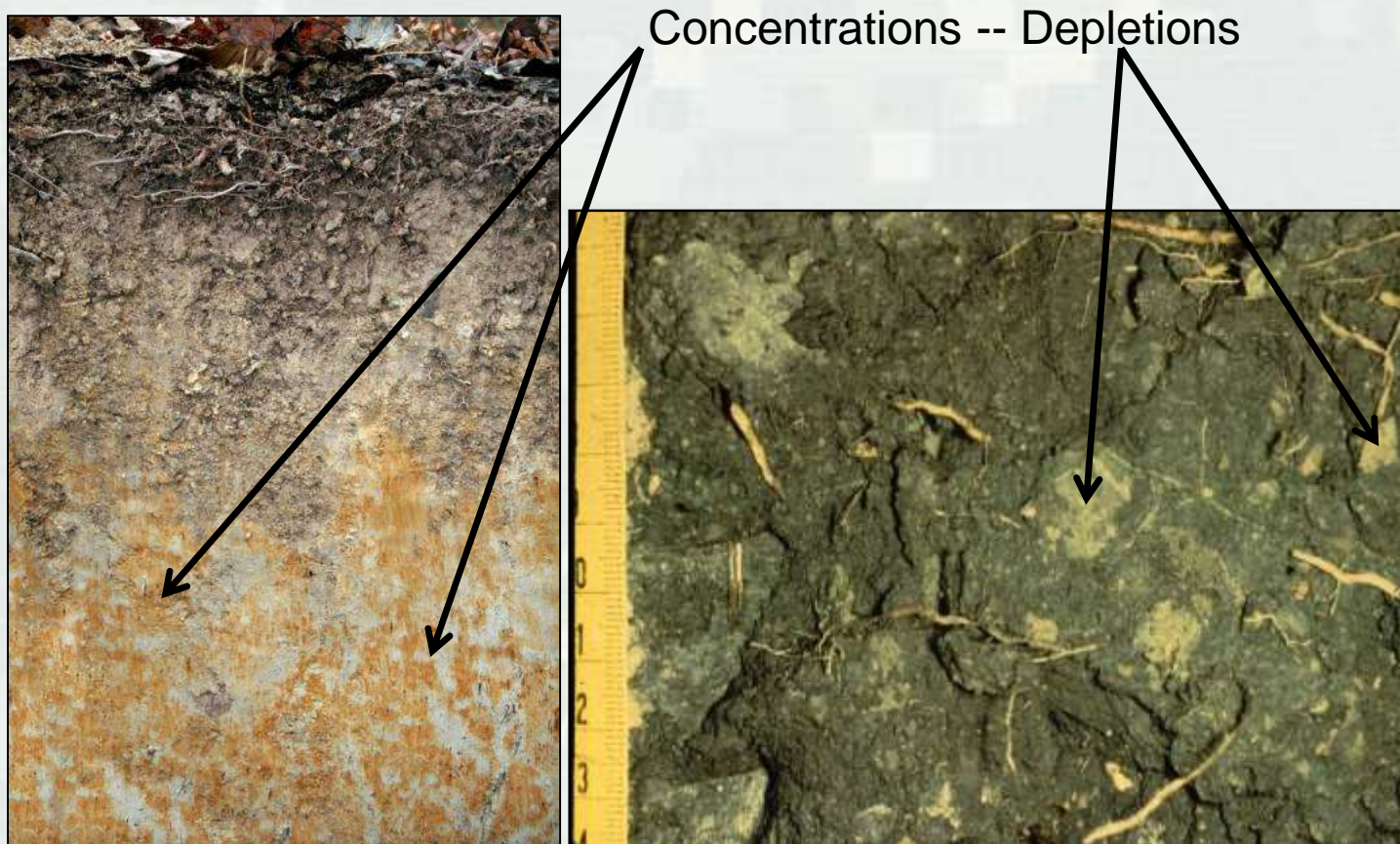
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10 YR 3/2	100						
7-20	10 YR 5/1	90	10 YR 6/8	10	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

- ☐ Record: Layer Depth and Thickness (to at least to 20" depth)
- ☐ Record: Matrix Color and Percent
- ☐ **Record: Redox Color and Percent**
- ☐ **Record: Redox Feature Type**
- ☐ **Record: Redox Feature Location**

Redox Features Within a Soil Matrix

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Redox Colors: Concentrations vs. Depletions

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SOIL

Sampling Point: _____

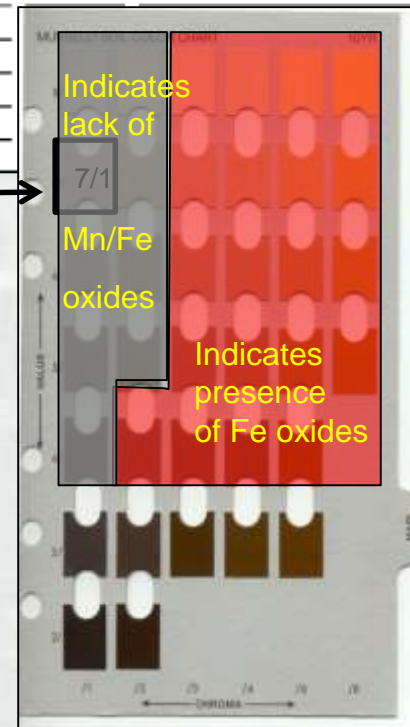
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10 YR 3/2	100						
7-20	10 YR 5/1	90	10 YR 7/1	10	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

10 YR 7/1 is a color in the depleted range...

...a depletion cannot be a concentration.





Describe the Soil Profile

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SOIL Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-7	10 YR 3/2	100				Muck	
7-20	10 YR 5/1	90	10 YR 6/8	10	C	L/C	Loamy Clay

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

- ☐ Record: Layer Depth and Thickness (to at least to 20" depth)
- ☐ Record: Matrix Color and Percent
- ☐ Record: Redox Color and Percent
- ☐ Record: Redox Feature Type
- ☐ Record: Redox Feature Location
- ☐ Record: Texture
- ☐ Record: Additional Supporting Information as Applicable



Describe the Soil Profile

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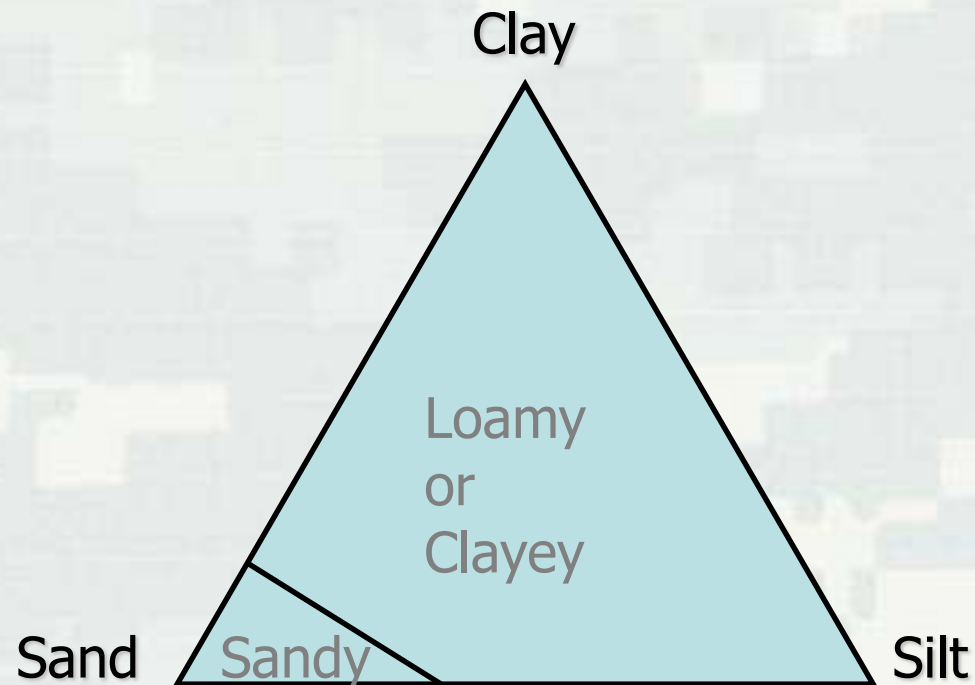
SOIL								Sampling Point: _____
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-8	10 YR 3/1	100						
2-8	10 YR 5/1	90	10 YR 2/1	10	C	M	Sandy Sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

- ☐ Record: Texture
- ☐ Record: Additional Supporting Information as Applicable

What is the correct texture...sandy or loamy?

“Basic” Soil Texture Triangle





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Textures We Need To Know

- ☐ Sandy
- ☐ Loamy/Clayey
- ☐ Organic: Muck, Mucky Peat,
Peat (Mucky Modified)



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Indicators are Arranged Based on Texture

SOIL Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Linings, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR S, T, U)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR S, T, U)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR O)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Marl (F10) (LRR U)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 151)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR O, P, T)
<input type="checkbox"/> Coast Prairie Redox (A15) (MLRA 150A)	<input type="checkbox"/> Umbic Surface (F13) (LRR P, T, U)
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 150A, 150B)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149A)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)	

Indicators for Problematic Hydric Soils:

<input type="checkbox"/> 1 cm Muck (A9) (LRR O)	Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 2 cm Muck (A10) (LRR S)	
<input type="checkbox"/> Reduced Vertic (F18) (outside MLRA 150A,B)	
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (LRR P, S, T)	
<input type="checkbox"/> Anomalous Bright Loamy Soils (F20)	
(MLRA 153B)	
<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Other (Explain in Remarks)	

- ☐ A Indicators = All Soils
- ☐ S Indicators = Sandy Soils
- ☐ F Indicators = Fine Soils (Loamy/Clayey Textures)



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Selecting the Correct Indicator(s)

After the soil profile is recorded on the data sheet...

...the correct hydric soil indicator can be determined by reading each one and comparing to the soil profile data.



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Correct Indicator?

SOIL Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10 YR 3/2	100					Muck	
7-18	10 YR 5/2	90	10YR 6/8	10	C	M	L/C	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR P, S, T, U)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR P, S, T, U)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR P, S, T, U)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Organic Bodies (A6) (LRR P, T, U)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> 5 cm Mucky Mineral (A7) (LRR P, T, U)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Muck Presence (A8) (LRR U)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> 1 cm Muck (A9) (LRR P, T)	<input type="checkbox"/> Marl (F10) (LRR U)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Ochric (F11) (MLRA 150A)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 150A)	<input type="checkbox"/> Umbric Surface (F13) (LRR P, S, T, U)
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Delta Ochric (F17) (MLRA 151)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Reduced Vertic (F18) (MLRA 152)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Anomalous Bright Loamy Soils
<input type="checkbox"/> Dark Surface (S7) (LRR P, S, T, U)	

Yes – F3 requires a depleted matrix with 60% (or more) chroma 2 or less (& value ≥4)
--2" thick if all in upper 6"
--6" thick starting in upper 10"
Notes: Redox concentrations required for matrix colors 4/1, 4/2, 5/2



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Jurisdictional Determination Request Form & Wetland Delineation Submittals





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Jurisdictional Determination Request Form

- ☐ The Charleston District Jurisdictional Determination Request Form was revised in February 2016. **Note: Request Form should be obtained directly from Corps website to ensure that the most up-to-date version is used.**
- ☐ The form helps to clarify what type of jurisdictional determination is being requested.
- ☐ The form includes a list of Information Required in a Wetland Delineation Submittal (page 4) if a delineation is included with the jurisdictional determination request.



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Importance of Complete and Accurate Wetland Delineation Submittals

- ☐ Necessary to assist with identifying wetland/non-wetland boundaries
- ☐ Accurate information helps us better understand site conditions from the office and may enable us to make “desktop” reviews
- ☐ Accurate information improves efficiency and timeliness of the jurisdictional determination review process



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Preliminary vs Approved

Preliminary

- Presumes all waters on-site are jurisdictional.
- Cannot be appealed.
- Completed more quickly

Approved

- Appealable
- Expire in 5 years.
- Determine jurisdictional status of waters.

*Can get approximate or accurate for both types of requests.



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Property Owner Permissions

WE MUST HAVE PROPERTY OWNER PERMISSIONS BEFORE PROCESSING THE JD.

Anything besides the signed JD form must be reviewed by our Office of Council. (Easements, Individual Permissions, etc.)

*Property owner permissions must be obtained even when the Corps is conducting a desktop review.



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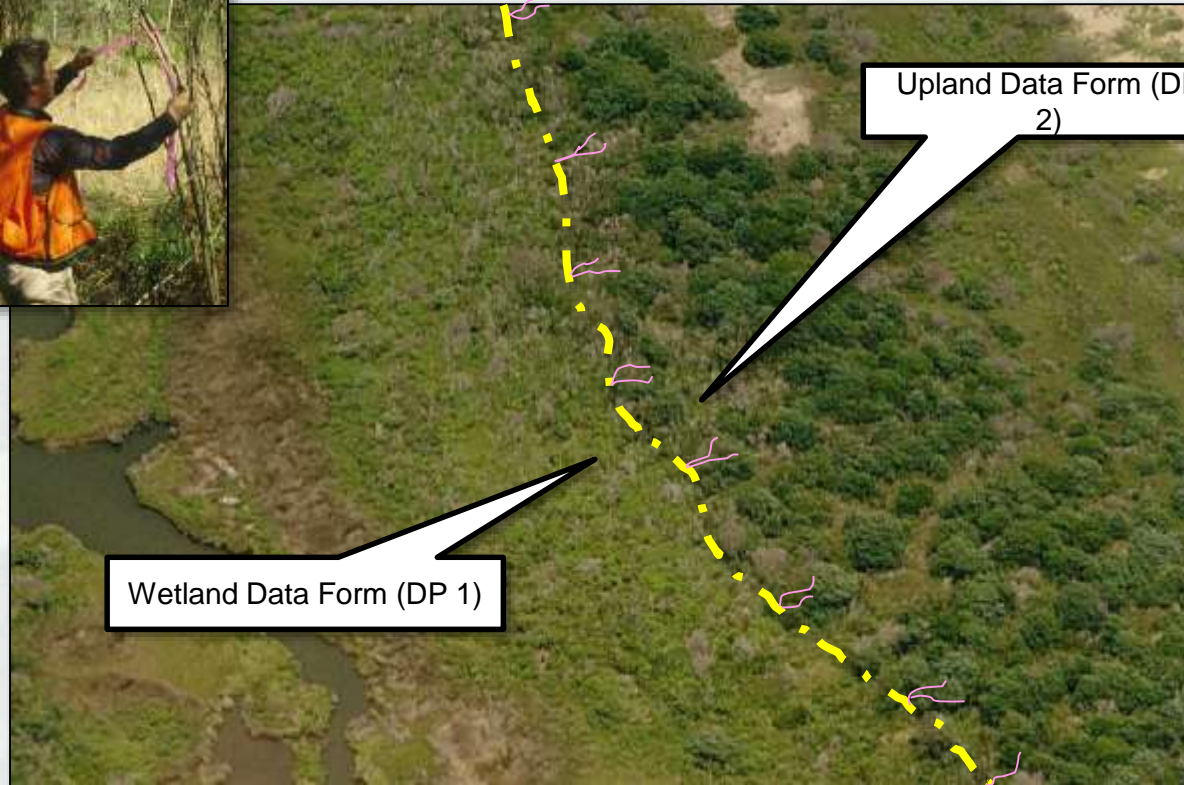
Wetland Data Sheets

- ☐ Appropriate data sheets must be used and completed fully
- ☐ Data points must be located such that there is a pair of points at multiple locations for each wetland type, on both sides of the wetland line in positions that illustrate the distinction between wetland and non-wetland
- ☐ Sufficient number/location of data points should be taken to represent the wetland/upland status of the entire investigation area.
- ☐ Description of the local site conditions at the time of the field inspection (e.g. temperature, weather, local rainfall data compared to NRCS WETS tables (use additional narrative within the submittal if necessary))



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Hang the Flags/Complete Data Sheets



Upland Data Form (DP 2)

Wetland Data Form (DP 1)



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Maps, Wetland Sketches and Photos

- ❑ Location Maps: large-scale and small-scale maps, including streets, intersections, cities and an accurate depiction of the project boundary
- ❑ Overlay project boundary on aerial photos, USGS topographic maps, Soil Survey maps and National Wetland Inventory maps. (Part of the Preliminary Data Gathering section of the '87 Wetland Delineation Manual, provides very useful site information, and can reveal locations to focus on during on-site investigation)
- ❑ Landscape photos of representative areas and aquatic resources.



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Data Point Reminders

Complete a sufficient number of data points in appropriate locations to support your conclusions ...

...and to confirm or refute the information on natural resource maps.

This is especially important when NWI maps show wetland features, NRCS maps depict hydric soils, aerial photographs indicate wet signatures, or quad maps show wetlands or other water features that are not actually present on the site.

Example Site



Topo map indicates wetlands and waters may be present on site

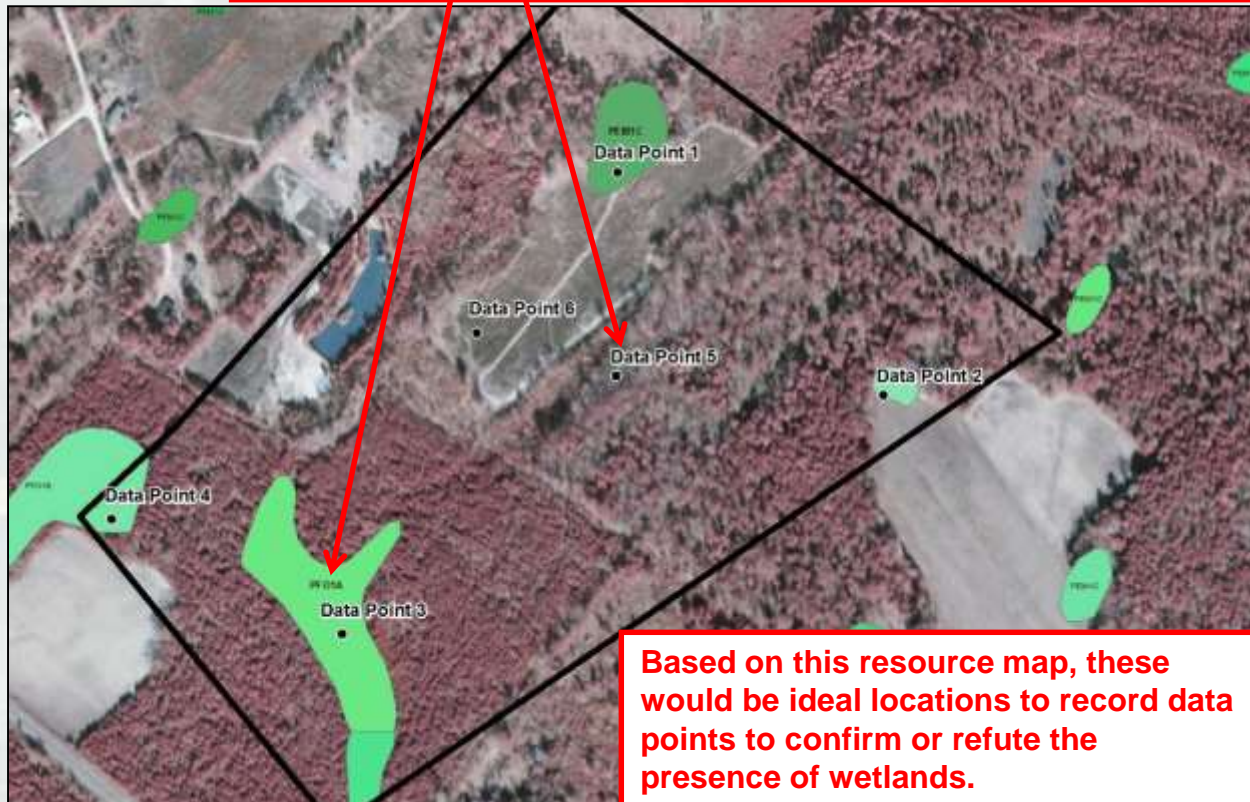
NWI map and aerial photo indicate wetlands may be present on site





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Data Points should be recorded in areas where topo map, NWI map, and/or aerial photograph indicate wetlands may be present **EVEN if they are **NOT PRESENT** on the ground.**



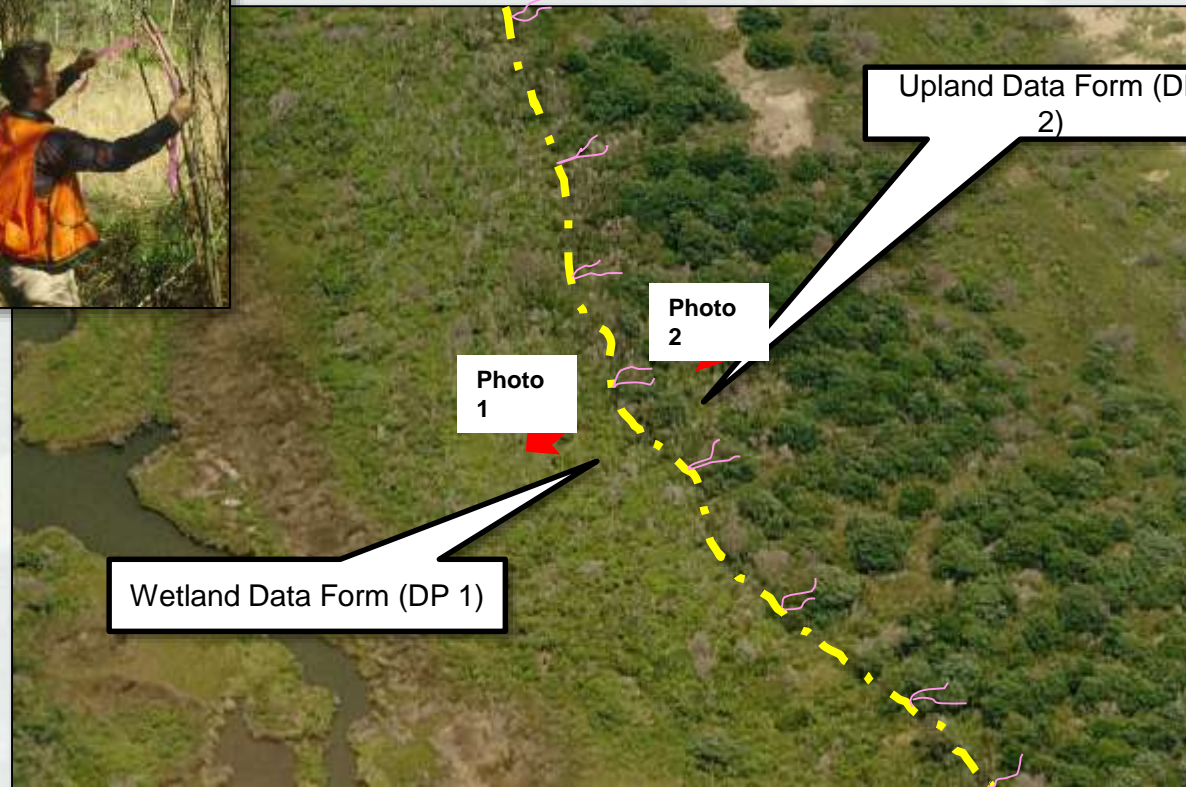
Based on this resource map, these would be ideal locations to record data points to confirm or refute the presence of wetlands.

If data confirm wetland presence, upland data points would also be needed to complete the paired-data point requirement.



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Hang the Flags/Complete the Data Sheets



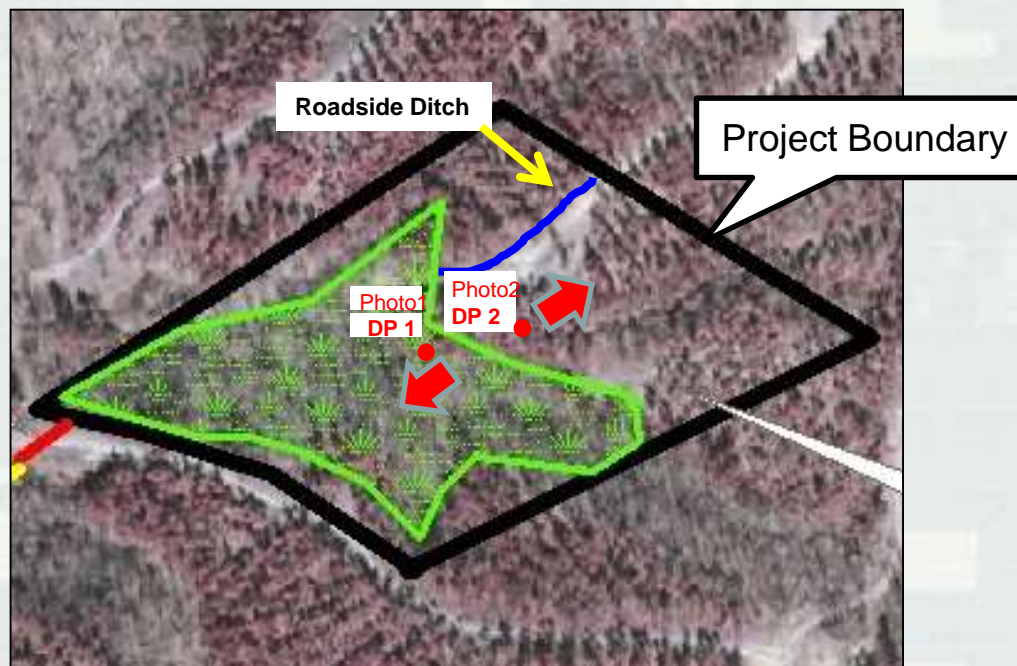


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Maps, Wetland Sketches and Photos

- ❑ Sketch of all aquatic resources (wetlands, tributaries, ponds, ditches, etc.), preferably on an aerial photo using no-fill polygons
 - ▶ Data point locations with labels
 - ▶ Photo locations and directions
 - ▶ Overlay project boundary on aerial, USGS topographic map, soil survey, and NWI map

Example Wetland Sketch





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Documentation: Example Photo at DP 1



Photo 1: Wetland A looking south from vicinity of DP 1



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Required Elements of an Approximate Depiction of Aquatic Resources (Non-Surveyed Depiction)

- ☐ Title Block with project name, applicant, county, state, date
- ☐ Solid bold line depicting project area boundary clearly labeled
- ☐ Clearly marked and labeled boundaries of all aquatic resources (Wetlands, Streams, Lakes, Borrow Pits, Ponds, Rivers, Drainage Features, Ditches). All aquatic feature labels should begin with “jurisdictional” or “non-jurisdictional”
- ☐ North arrow
- ☐ Label all aquatic resources.
- Should include information from label table.



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Required Elements of an Accurate Depiction of Aquatic Resources (Survey Plat)

- ☐ Title Block with project name, applicant, county and state
- ☐ Vicinity map
- ☐ Labeled names of significant adjacent and/or internal roads, water bodies or other unique reference features
- ☐ North arrow / compass rose
- ☐ Distance scale
- ☐ Preparation date, revision dates, original signature and the surveyor seal of a SC-Registered Land Surveyor
- ☐ SCDHEC-OCRM signature approving critical line boundaries and acreage (if applicable)
- ☐ Solid bold line depicting project area boundary clearly labeled
- ☐ Surveyed boundaries of all Waters of the U.S.; “floating” polygons must be tied to a referenced survey point
- ☐ Clear labeling of all Waters of the U.S. and other pertinent features, such as TNW, Perennial RPW, Seasonal RPW, Wetland, Isolated Wetland, Tidal Waters, Borrow pit, Pond, Uplands, etc. All aquatic feature labels should begin with “jurisdictional” or “non-jurisdictional”
- ☐ Survey data table, listing prominent labeled polygon point locations, expressed in *Metes & Bounds* or *State-Plane coordinates*
- ☐ Acreage Summary Table: **Same Requirements Listed Under #4 above.**



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Table 1:
Jurisdictional Status Label Table for APPROVED Jurisdictional Determinations

Label ¹	Description
Jurisdictional Features	
TNW x ²	Traditionally Navigable Water and/or OCRM Critical Area Wetland
TNW Tidal Ditch x	Tidally-influenced ditches (below MHW line)
Jurisdictional pRPW Tributary x	Jurisdictional perennial Relatively Permanent Water
Jurisdictional sRPW Tributary x	Jurisdictional seasonal Relatively Permanent Water
Jurisdictional non-RPW Tributary x	Jurisdictional non-Relatively Permanent Water
Jurisdictional Ditch x ³	Jurisdictional Ditch ³
Jurisdictional Wetland x	Meeting 3-parameters per 1987 Delineation Manual
Jurisdictional Lake x	
Jurisdictional Impoundment of WOUS x	Jurisdictional Impoundment of waters of the U.S.
Jurisdictional Pond x	
Non-jurisdictional Features	
Non-jurisdictional non-RPW Tributary x	Non-jurisdictional non-Relatively Permanent Water
Non-jurisdictional wetland x	
Non-jurisdictional isolated wetland x	
Non-jurisdictional ditch x	
Non-jurisdictional linear conveyance x	
Non-jurisdictional Borrow Pit x	
Non-jurisdictional manmade Lake x	
Non-jurisdictional upland excavated Pond x	
Non-jurisdictional Impoundment x	
Upland	Uplands should be labeled when wetlands or other waters, regardless of jurisdictional status, are present. When no wetlands or other waters are present, the "Upland" label is not necessary.



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Table 2:
Label Table for PRELIMINARY¹ Jurisdictional Determinations

Label	Description
Tidal Wetland X	Tidal wetland, OCRM Critical Area Wetland
Freshwater Wetland X	Freshwater wetland (differentiate when tidal wetlands are also present)
Wetland X	When only freshwater wetlands are present
Tributary X	Tributaries, linear non-wetland waters, with unknown flow regime
Tributary-Perennial X	Tributaries, linear non-wetland waters, with perennial flow
Tributary- Seasonal X	Tributaries, linear non-wetland waters, with seasonal flow
Tributary- Intermittent X	Tributaries, linear non-wetland waters, with less than seasonal flow
Pond X	Pond
Water X	Non-linear non-wetland water features, including open water borrow pits and other open water excavated areas.
Non-aquatic feature X	A feature that is determined by the Corps not be an aquatic feature and therefore not potentially jurisdictional. Non-aquatic features do not need to be shown and labeled on plats but must be shown and labeled on supplemental sketches.



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Questions?

